Gli1 is a protein originally isolated in human glioblastoma.

The Gli proteins are the effectors of Hedgehog (Hh) signaling and have been shown to be involved in cell fate determination, proliferation and patterning in many cell types and most organs during embryo development.

In the developing spinal cord the target genes of Gli proteins, that are themselves transcription factors, are arranged into a complex gene regulatory network that translates the extracellular concentration gradient of Sonic hedgehog into different cell fates along the dorsoventral axis.

The Gli transcription factors activate/inhibit transcription by binding to Gli responsive genes and by interacting with the transcription complex. The Gli transcription factors have DNA binding zinc finger domains which bind to consensus sequences on their target genes to initiate or suppress transcription.

Yoon showed that mutating the Gli zinc finger domain inhibited the proteins effect proving its role as a transcription factor. Gli proteins have an 18-amino acid region highly similar to the α-helical herpes simplex viral protein 16 activation domain. This domain contains a consensus recognition element for the human TFIID TATA box-binding protein associated factor TAFII31.

Other proteins such as Missing in Metastasis (MIM/BEG4) have been shown to potentiate the effects of the Gli transcription factors on target gene transcription. Gli and MIM have been shown to act synergistically to induce epidermal growth and MIM + Gli1 overexpressing grafts show similar growth patterns to Shh grafts.